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IS 7337 (2010): Project Management - Glossary of Terms [MSD
4: Management and Productivity]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
परियोजना प्रबन्ध — पारिभाषिक शब्दावली
(दूसरा पुनरीक्षण)

Indian Standard
PROJECT MANAGEMENT — GLOSSARY OF TERMS
(*Second Revision*)

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FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Management and Productivity Sectional Committee had been approved by the Management and Systems Division Council.

Project management is the discipline of organizing and managing resources in such a way that these resources deliver all the work required to complete a project within defined scope, time and cost constraints. It is the application of knowledge, skills, tools and techniques to a broad range of activities in order to meet the requirements of the particular project.

Project management is a carefully planned and organized effort to accomplish a specific (and usually) one-time effort. It includes developing a project plan, which includes defining project goals and objectives, specifying tasks or how goals will be achieved, what resources are needed, and associating budgets and time limit for completion. It also includes implementing the project plan, along with careful controls to stay on the 'critical path', that is, to ensure the project is being managed according to plan. Project management usually follows major phases, including feasibility study, project planning, implementation, evaluation and support/maintenance.

Its concepts and applications have expanded considerably during the recent years, thereby making it important to define the various terms used in order to avoid ambiguities in their interpretation during usage.

This standard was originally published in 1974 and then revised in 1985. This revision has been formulated to include many additional terms relating to project management. Some of the terms in earlier version have been re-defined in the light of latest developments and experience gained.

This standard defines the terms commonly used in project management so as to facilitate communication and the spread of knowledge in its practice. These definitions have been primarily divided into three sections, namely, Section 1 Organization and management; Section 2 Planning; and Section 3 Review procedures for project coordination and control. Within the respective sections, the definitions have been arranged in alphabetical order to facilitate its reference.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

Indian Standard

PROJECT MANAGEMENT — GLOSSARY OF TERMS

(*Second Revision*)

1 SCOPE

This standard gives definitions of terms relating to project management.

2 TERMS AND DEFINITIONS

Section 1 Organization and Management

2.1 Build Own Operate (BOO) — An agent is granted the right to develop, finance, design, build, own, operate and maintain a project for the client. The agent owns the project and retains the revenue and risk for a specified period.

2.2 Build Own Operate Transfer (BOOT) — An agent is granted the right to develop, finance, design, build, own, operate and maintain a project for the client. The agent owns the project and retains the revenue and risk for a specified period after which the ownership is transferred to the client.

NOTE — It is also referred as 'Build Own Transfer (BOT)'.

2.3 Contract Management — A mutually binding agreement between the owner and the contractor for providing services against payment for execution of project.

- a) *Cost plus contract* — A contract that provides for reimbursement of actual cost plus a fixed fee percentage of actual cost which may be subjected to a prescribed limit.
- b) *Item rate contract* — It is an agreement requiring the completion of different items of project work according to bills of quantities, specifications of quality and rates for unit quantity of work of each item.
- c) *Lump sum rate contract* — A contract under which the payment is made for the project as a whole either at a fixed price or at a fixed price plus a pre-determined fee for superior work.
- d) *Percent rate contract* — It provides for reimbursement of costs of different items of project work according to a prescribed schedule plus payment of an agreed percentage of the schedule.
- e) *Turn-key contract* — A turn-key contract is one in which the contractor is responsible for

setting up a plant or facility and putting it into operations to achieve prescribed performance standards.

2.4 Project Communication Management — A subset of project management that includes communications planning, information planning, information distribution, performance reporting and administrative closure in an effort to correctly disseminate project information for effective implementation and monitoring of the project.

2.5 Project Organization — The organization structure created or evolved to serve the project and its stakeholders.

2.5.1 Project Organization Structure

- a) *Functional organization structure* — An organizational structure for undertaking various specialized tasks of the project.
- b) *Matrix organization structure* — A structure created from staff drawn from various functional departments working under the direction of project manager till the completion of the assigned responsibility(ies).
- c) *Projectized organization structure* — An organization structure especially created for the project and headed by a project manager having total administrative and functional control.

NOTE — The project management may be supported by outside personnel like consultants, etc.

2.6 Project Manager — An individual with authority, accountability and responsibility for managing a project to achieve specific objectives.

Section 2 Planning

2.7 Activity — It is a task or a group of tasks in the project which consumes time and resources.

2.8 Activity Break Down — It describes the structural breakdown of the project in a hierarchical manner into work packages and individual activities required to be executed for the completion of the project.

2.9 Activity Float — It is the time available to an activity in addition to its planned duration without

affecting the completion time of the project. There are four types of activity floats namely, total float, free float, independent float and interference float.

2.10 Activity on Arrow Network — A type of project network where activities are represented by arrows. The inter-relationship between various activities is represented by the interconnecting events. These networks are also sometimes referred to as ‘Arrow diagrams’. The direction of arrows is usually shown from left to right and length of arrow does not have any relationship with the duration of the activity.

2.11 Backward Pass — It is a procedure during the time analysis involving backward traversal of the network from the ending event to the starting event to determine the latest start and finish time of each activity.

2.12 Cost Analysis — It is the analysis of project network by estimating the cost of each activity for a given time and resource requirement to arrive at the total cost of the project and analyzing different alternatives with respect to different time and resource requirements of the activities and their impact on the total cost of the project with a view to optimizing the total project cost.

2.13 Cost Variance Chart — A chart depicting the actual cost of an activity and its variance from the planned/budgeted cost.

2.14 Crashing — The process of reducing the time duration of an activity(ies) in a project by deployment of additional resources in order to expedite the project completion.

2.15 Crash Activity Duration — The time duration of an activity when executed at an expedited rate with additional resources to achieve/advance project schedule.

2.16 Crash Cost — The cost of an activity when executed in crash duration by deployment of additional resources.

2.17 Crashing Cost — The additional direct cost incurred on the activity as a result of crashing that is the difference between the crash cost and the normal cost of the activity.

2.18 Critical Activity — An activity with zero/minimum float wherein any delay in completion of the activity will delay the completion of project by the same magnitude of time.

2.19 Critical Path — This, in the network, is the longest duration path from the start to the end of the project determining the project duration. There may be more than one such path.

2.20 Critical Path Method (CPM) — It is a technique used for depicting the project activities with deterministic time estimates in the form of a project network and determines the path of critical activities to facilitate time, resource and cost planning of the project.

2.21 Dangling Activity — It is an activity in the network which stand alone and has no successor activity (ies).

2.22 Dependency Relationship — It is a relationship in which the next activity or a group of activities can not begin or end until preceding activity or group of activities has been started or completed.

2.23 Detailed Plan — It is a document to facilitate day-to-day execution and monitoring of activities where activities are further broken down into tasks specifying the methodology, working practices, work norms, etc, for optimum utilization of resources.

2.24 Dummy Activity — It is an activity which represents only interdependency and does not consume either time or resources.

NOTE — it is sometimes referred to as ‘zero time activity’.

2.25 Equipment/Machine Loading Plan — It is a document specifying allocation schedule of an individual equipment/machine to various activities over a period of time. For example, cranes, excavators, etc.

2.26 Event Slack — It is the difference between the latest allowable time and the earliest possible occurrence time of an event.

2.27 Forward Pass — It is a procedure during the time analysis involving forward traversal of the network from the starting event to the ending event to determine the earliest start and finish time of each activity.

2.28 Free Float — It is the time available to an activity in addition to its planned time when all the preceding activities are assumed to have been completed at the earliest finish time and all succeeding activities can be started at the earliest possible time.

2.29 Independent Float — It is the time available to an activity in addition to its planned time when all the preceding activities are assumed to have been completed at the latest finish time and all succeeding activities can be started at the earliest possible time.

2.30 Individual Work Plan — It is a document specifying allocation of precise responsibilities along with its time schedule to each individual member or group of members where the responsibility of work is assigned to a group.

2.31 Interference Float — It is the difference between total float and free float, which can be carried forward to succeeding activities and shared.

2.32 Ladder Activity — Two or more activities in a network, which though interdependent, are capable of being scheduled concurrently for major part of their duration connected by either lead time or lag time.

2.33 Milestone — It is the completion of a phase or a significant stage in a project.

NOTE — In the activity-on-arrow network, the event representing milestone is called the 'Milestone Event'.

2.34 Normal Activity Duration — The duration of an activity when executed under normal circumstances.

2.35 Normal Cost — The cost of an activity when executed under normal circumstances.

2.36 Precedence Network (Activity-on-Node Network) — A type of project network in which the activities are represented by nodes and precedence relationship between the activity interconnecting arrows. The precedence network may depict four types of dependency relationships between a pair of activities namely, start to start, start to finish, finish to start or finish to finish.

2.37 Probabilistic Time Estimate — When the time duration of an activity is not known with certainty and is found to have random variation, in such cases the activity duration is calculated in terms of optimistic time estimate (a), most likely time estimate (m) and pessimistic time estimate (b) as under:

$$\text{Expected time} = \frac{a + 4m + b}{6}$$

2.38 Product Break Down — Describes the structural breakdown of the project in a hierarchical manner into product packages and individual products to be delivered at the end of the project.

2.39 Programme Evaluation and Review Technique (PERT) — It is a technique used for depicting the project activities with probabilistic/ stochastic time estimates in the form of a project network and determine the probability of the project completion in different time periods to facilitate time, resource and cost planning of the project.

2.40 Project Bar Chart/Gantt Chart — Display of project schedule and/or progress of activities in the form of bars.

2.41 Project Calendar — The calendar which specifies the working and non-working days for the project.

2.42 Project Closeout — A process that provides for acceptance of the project by the project sponsor,

completion of various project records, final revision and issue of documentation to reflect the 'as-built' condition.

2.43 Project Network — It is a graphical model depicting the inter-relationship amongst the various activities of the project. Project networks show the execution of activities depicting the flow of time from start of the project till its completion (usually from left to right).

2.44 Project Objective — It is a set of deliverables at the end of a project, meeting the functional and the quality requirements within the prescribed time and cost estimates so as to meet its time schedule.

2.45 Project Plan — It is the basic reference document for execution and monitoring of the project. It contains the various activities of the project, their inter-relationships, resources required to execute these activities and the planned schedule of execution.

2.46 Project Planning — It is a process involving the estimation of work content, activities required to perform that work, resources required for these activities, determine relationship amongst activities, scheduling of activities and their integration for optimum utilization of resources and completion of the project within the time and cost estimates with a view to achieve the desired project objectives.

2.47 Project Scope — A concise and accurate description of the end products or deliverables to be expected from the project and that meet specified requirements as agreed amongst the project's stakeholders.

2.48 Project Team — It is a multi-disciplinary organizational group, headed by a project manager, responsible for execution of a project. Project team may consist of personnel drawn from various disciplines like design, engineering, procurement, construction, quality assurance and inspection, safety, project management, etc.

2.49 Resource Analysis — Analysis of project network by considering both the time and resource requirements of the activities to determine the planned start and finish time of each activity within the time and resource constraints with a view to optimize the utilization of resources.

2.50 Resource Constrained Project Scheduling — It is a method of resource analysis where the resources are limited and inflexible and the project schedule is arrived at with a view to optimal utilization of the available limited resources.

2.51 Resource Levelling — The process of rescheduling activities such that the requirement for

resources for the project does not exceed resource limits and resources are optimally utilized.

2.52 Resource Productivity Chart — Depicts the comparison between the actual productivity of resources and the standard norms.

NOTE — The productivity of resources is expressed in term of work done per unit of resource used that is per machine hour or per man-day.

2.53 Resource Work Plan — It is a document specifying the requirement of resources like manpower, construction equipment/machinery during execution of the project at different time period and how they are planned to be made available.

2.54 Risk Assessment — The process of identifying potential risk, quantifying their likely occurrence and evaluating their impact on the project.

2.55 Risk Identification — The process of determining which event will affect the project.

2.56 Risk Control — An iterative process for monitoring and controlling the risks by identification, assessment and treatment.

2.57 Risk Treatment — The process of selection and implementation of appropriate options (like eliminate, mitigate, transfer, share or accept risks) for dealing with risk.

2.58 Stage Plan — It is a part of the project plan giving details of one of the stages of a large project and its interface with the other stages as well as the overall project.

2.59 Squared Network — It is a time scaled network in which the arrows (activities) are drawn in proportion to the activity time duration.

2.60 Time Analysis — It is the analysis of the project network related to the time characteristics of a project for determining the earliest and latest start and finish time of the activities, with associated float, with a view to arriving at a time plan of the project.

2.61 Time Variance Chart — A chart depicting the actual beginning and completion of various activities and its variance from the planned beginning and completion of the activity.

2.62 Total Float — It is the total time available to an activity in addition to its planned time when all the preceding activities are assumed to have been completed at the earliest possible time and all succeeding activities can be started at the latest allowable time.

2.63 Work Breakdown Structure — Describes the structural breakdown of the work content of the project in a hierarchical manner into sub projects,

work packages, products and activities for achieving the project objectives.

2.64 Work Package — A group of related activities assigned collectively to a group of project team members leading to the delivery of project product or project component.

Section 3 Review Procedures for Project Coordination and Control

2.65 Accounting Variance (AV) — It is the difference between the budgeted cost of work scheduled and actual cost of work performed. It is the component of cost variance which is attributed to reasons other than schedule slippage:

$$AV = BCWS - ACWP$$

2.66 Actual Cost of Work Performed (ACWP) — It is the amount of actual cost incurred for work (at actual price) performed during and cumulatively upto the end of a given period.

2.67 Budgeted Cost of Work Performed (BCWP)/ Earned Value — It is the budgeted cost of work actually performed during and cumulatively upto the end of a given period of time. It is also known as 'Earned value' of actual work.

2.68 Budgeted Cost of Work Scheduled (also referred as Planned Cost of Work Performed) (BCWS) — It is the budgeted cost of work (at a pre-determined price) scheduled to be completed during and cumulatively upto the end of a given period.

2.69 CPI (Cost Performance Index) — The ratio of budgeted cost of work performed (BCWP) and actual cost of work performed (ACWP) wherein the value less than one indicates that the project cost has exceeded the budget and the value greater than one indicates that the project cost is within budget.

2.70 Cost Variance — It is the difference between the budgeted cost of work performed and the actual cost of work performed:

$$\text{Cost variance (CV)} = BCWP - ACWP$$

2.71 Estimated Cost at Completion (EAC) — It is the total cost estimated for the completion of the project. It is arrived at by adding cumulative actual cost of work performed upto a given time to the projected cost for remaining work.

2.72 Project Analysis — The process of checking and comparing the project data (collected during monitoring) with the baseline to determine any deviations and its causes.

2.73 Project Control — The process of ensuring conformance of actual performance with planned performance.

2.74 Project Monitoring — Collecting, recording and reporting information in relation to the plan concerning any or all aspects of project execution namely time, cost and performance.

2.75 Project Review Cycle — An iterative method of monitoring and analyzing the activities *viz-a-viz* the baseline of the project, to determine corrective measures and updating the plan accordingly.

2.76 SPI (Schedule Performance Index) — The ratio of budgeted cost of work performed (BCWP) and budgeted cost of work schedule (BCWS) wherein the value greater than one indicates that the project

is ahead of schedule and the value less than one indicates that it is behind schedule.

2.77 Schedule Variance — It is difference between the budgeted cost of work performed and the budgeted cost of work scheduled. It is the component of the cost variance which is attributed to schedule slippage:

$$SV = BCWP - BCWS$$

2.78 Time Variance — It is the difference between the scheduled time of work performed and the actual time of work performed.

ANNEX A (Foreword)

COMMITTEE COMPOSITION

Management and Productivity Sectional Committee, MSD 4

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